

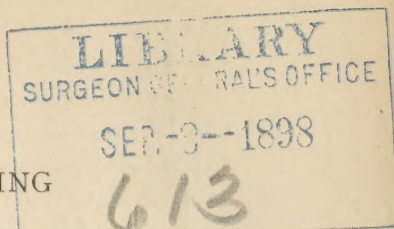
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VI

ON MEDICAL TEACHING



The doctrine of interest and theory of apperception are two great principles upon which modern education rests: the first states the most favorable conditions for the production of mental activity: the second describes the steps by which knowledge is acquired. These generalizations constitute universal laws of teaching, for they are based upon the investigation of psychological processes involved in learning.

Interest always has been used in education to enable the teacher to impart more facts, but in itself was deemed of no more importance than the sugar coating of a pill. Modern teachers, however, make the awakening of a many-sided interest one of the aims of education, and to this purpose subject-matter is subordinated. By creating both thoughtfulness and the desire for more facts, interest assures assimilation and is called the "long lever-arm of education"; it also furnishes a guarantee for further progress after the pupil's formal training is completed. Psychological analysis gives interest its high place in modern education and shows why it can be used as a reliable test for any curriculum or method of instruction.

The theory of apperception states the laws governing mental assimilation. We build the new upon the old; our grasp of a new idea is controlled by the character of the older group of ideas already existent in the mind, and all teaching must aim at preserving a certain relation between the new material offered and the content of the mind. A study of the processes of apperception gives a death-blow to the theory that the mind can be filled with, and retain, isolated facts. The new idea must find itself at home; it must be at once welded to the old, or it will rapidly slip

away. Under the older educational systems much effort was wasted by expending mental energy upon improperly related facts.

To apperceive, however, requires mental activity, and this can be assured only when the mind occupies that attitude toward a subject which is denoted by the term "interested." Modern educators claim that the physiology of mental processes should be studied by every teacher in order that subject-matter may be presented in a way that conforms to those processes. The law of apperception furnishes the line for constructing a rational educational plan; interest gives that plan its dynamic value.

The curriculum of a medical school represents an analysis of medicine into various subjects, which are presented to the student in what is considered to be their logical order. First, anatomy, physiology, and chemistry; then *materia medica*, pathology, and therapeutics; finally medicine and surgery. Evidently the design of the curriculum is to fill the student-mind with knowledge; it begins with laying solid foundations of elementary subjects and upon these building the superstructure of medicine and surgery. The same logical principle rules the order of presentation of any one subject; anatomy begins with the thorough study of the bones; before the action or use of a drug is taught, its habitat, appearance, and chemistry must be learned.

Such a curriculum may be logical when subject-matter alone is regarded, but it does not represent the order in which the mind most easily acquires knowledge. The mind cannot be looked upon as passive and waiting to be filled; to apprehend a fact requires activity, and this activity, so essential for learning, is best aroused when the student's mind comes into contact with a subject at the point most favorable for awakening interest. It is the fruit or flower that stirs in us the desire to study the details of botanical structure; it is the disease or injury that gives anatomy and pathology their great importance. The medical curriculum violates the doctrine of interest at the very start; instead of stimulating mental activity at the outset by beginning at

the point of greatest interest, it wearies the mind and interposes the resistance of the least attractive subjects. Instead of aiming to give the student an impetus which will carry him over the dry details, it attempts to get up speed by applying friction; it adds a handicap just as the student steps upon the race-course of medical instruction.

The study of apperception shows that the value of facts depends upon perceiving their relations to other facts and that this act of perception is a great aid to the development of interest; delay in forming connections between facts means their isolation and brief retention. In the construction of the medical curriculum correlation does not appear as a guiding principle; the student receives his knowledge in pieces, which must be held in the memory and later put together like parts of a picture-puzzle. The value of anatomy, pathology, and therapeutics becomes very evident when these subjects are presented in their relations to medicine and surgery, but a delay of months or years between the presentations of related subjects means a loss of many ideas necessary for apperception, and the imperfect grasp of the new ideas.

The medical curriculum is constructed with utter disregard of the laws of apperception; instead of recognizing mind as the controlling factor, it obliges the student to expend a part of his power in bending his mind to conform to a rigid plan governed by subject-matter alone. Medicine is a difficult science to teach at the best, yet our medical faculties arrange a curriculum which both displays their own pedagogical ignorance and adds to the labors of the student.

Not always have medical faculties originated from an honest desire to teach medicine, but often the chief aim has been to give prominence to themselves. From the commercial side, it is very profitable to be known in the community as a professor and to have the opportunity of giving the impression of extensive knowledge to numerous young men who, in their difficulties, naturally will turn to you for counsel. In many schools these commercial interests crowd upon the educational and lower the standard of instruction.

The didactic lecture, so largely used in medical teaching, makes prominent the professor and gives grand opportunities for pyrotechnic displays of learning which fairly dazzle the admiring audience. Hence this form of teaching has clung tenaciously to the medical schools; it forms a part of the compensation of the medical instructor.

From an educational standpoint, the didactic lecture has few redeeming features. Rarely, in undergraduate teaching, do we wish the personal views of the lecturer; hundreds of clearly written text-books will give us the consensus of opinion upon any branch of medicine, and where the primary aim seems to be the imparting of a large number of facts the didactic lecture is a roundabout way to the goal. In a lecture facts are fired at the class in repeated volleys, but the lecturer has no idea how often he misses the mark. Consider the labor of preparing lectures, the exertion of delivery, the mental energy expended in cramming, and the net result of permanent knowledge seems very small in proportion to so much effort.

The gravest charge against didactic lecturing is that there is no assurance of the development of thoughtfulness. Telling is not teaching; language has not the power of transmitting ideas from speaker to hearer unless the apperceiving mental content becomes active. The lecturer is controlled chiefly by his subject-matter and assumes that every fact is grasped as uttered; he has no means of knowing how far he arouses that mental activity upon which his entire success as a teacher depends.

During the past few years a recitation system has been in use in many schools. The student commits to memory the facts from a certain number of pages in a text-book and the recitation merely tests his power of retention. As educational exercises most recitations are wretched, but for cramming they are far more effective than the didactic lectures, for the facts come direct to the mind without filtering through a notebook.

The system of medical teaching naturally leads up to an examination which is chiefly a memory test. The students

appreciate that facts are the things valued, and in almost all medical schools cramming for examination is developed to a high art. By means of trained "quiz masters" the tide of the student's knowledge is brought to high-water mark at the hour of examination: the ebb sets in immediately after, and with great violence.

From this cursory view of medical teaching we reach the following conclusions: Curriculum and method of teaching seem to aim at a filling-up process; even this aim is wastefully accomplished, for the student works unnecessarily hard by being called upon to learn and relearn disjointed facts. During the course mental activity is neither properly stimulated, directed, nor tested. In proportion to effort expended, the net results are poor.

At present there is a strong tendency toward increasing the length of the medical course by the addition of a fourth year, and many schools have taken a step in this direction. The trouble with the medical course is not its shortness, however, but the poor quality of the teaching. Not until the instruction during three years has reached its highest efficiency can we discuss intelligently the question of a fourth year. It should be our object to diminish the percentage of waste and see whether three, or even two, years of good teaching may not be more advantageous than four years of poor. If modern education rests upon physiological grounds it should be a time-saver for the student, and he has a right, at present, to view with some suspicion the demand that he spend a fourth year in his medical training. To pour more facts into our students by no means necessarily increases their power; it is time medical instructors distinguished between quantity and quality.

As the doctrine of interest and the theory of apperception formed the basis for criticism, so do these same principles determine the lines along which reform should travel. The curriculum should present the subject at the point of greatest interest, it should begin with clinical instruction; around the patient, or at least the disease, we should group anatomy, physiology, pathology, therapeutics, etc. Clinics

for first-year students should be an important feature, and with these everything else should correlate. For instance, a case of gastric disorder would serve to introduce the anatomy of the digestive tract, the physiology of digestion, and the action of certain drugs upon mucous membranes and secretion.

In all well-equipped schools there is enough clinical material about which the main features of the other subjects could be grouped. The curriculum would then present the facts in their normal relations, and the student would be stimulated by the interest which always accompanies apperception. The limits of this paper forbid a detailed description of a curriculum constructed upon modern principles, but the problem is not difficult when the aim is understood. No new subjects need be added; medicine and surgery would form the backbone of the entire course, and with them the other branches would be articulated. The amount of material presented to the student probably would be less than at present, for the completed curriculum would represent an economical, as well as scientific, adaptation of subject-matter to mind.

The didactic lecture and parrot-like recitation should be relegated to the museum for mediæval curiosities. The student should get his facts from the books, the laboratory, and the hospital ward; in the recitation and clinic the student should be trained to handle these facts. The modern recitation recognizes that permanent and effective knowledge must be elaborated by ourselves; only the energy of our own thinking can give dynamic value to our ideas. A properly conducted recitation causes the student to do his hardest thinking in the classroom; under the guidance of his instructor he reasons and deduces principles from the store of facts previously acquired. The doctrine of interest and theory of apperception control each step in the recitation, and not merely the possession, but the thorough assimilation of facts is the test of effective teaching.

So much has been written about method and the principles involved in conducting a recitation that the instructor

who holds a position in a medical school and makes no effort to fit himself for teaching shirks his duty; he is content to lag behind the times and do slovenly work. Anyone who knows more than his hearers can fill a lecturer's place, but the proper conduct of a recitation requires ability, application, and skill; the modern recitation offers a field worthy of the best intellects.

With every medical school there is connected a large number of men who teach independently of one another. If the work is to reach its highest efficiency, there must be some sort of organization among instructors. There should be regular meetings of the teaching corps, at which plans should be submitted for discussion and the proper amount of correlation assured. An instructor should be prepared to state and defend his plans on pedagogical grounds and free criticism be invited. In all other departments of education such meetings are considered indispensable; medicine is not so easy to teach, nor are the men engaged in it so superior, that they can dispense with such aids for effective work.

It is not the purpose of this paper to discuss every change involved in the application of "the new education" to medicine, but rather to indicate some of the main lines along which reform should come; nor should it be understood that every medical school, to the same extent, illustrates poor teaching. Here and there are instructors who, particularly in clinical and laboratory work, use the development method of teaching and appreciate the meaning of interest, correlation, and apperception. But a careful examination of a large number of catalogues fails to show one medical faculty, as a body, expressing a modern attitude toward education. Announcements may call attention to increased laboratory and hospital facilities, a longer course of study, etc., but contain nothing to show that the field of medical teaching has become affected by those educational advances so conspicuous in primary and secondary schools. Until medical teachers awake from their "dogmatic slumbers" there can be no step forward.

Let us anticipate two objections which are made again

and again. Many point to the number of great men produced under the old system. Why change a system which has produced such grand results? This is the argument which meets every attempt at progress; in the cities of the Middle Ages many people grew up to a ripe old age under conditions which, to-day, would land those responsible in prison; an equally good argument against sanitary reform. When we wish to judge of the value of a surgical procedure we ask for the rate of mortality, and a number of brilliant successes count very little compared with a high death-rate.

The second objection is that modern teaching demands too much of the instructor; unless better paid, a physician cannot afford to give so much time to educational work. This objection constitutes the reproach of medical teaching, for it means that a man is willing to accept a place in the medical school and then knowingly give the student a poor article for his money. Such a man has no business to be a teacher, and the medical school would be better off without him; he probably is keeping out a better man, and, while posing as a martyr, is sacrificing educational interests for the sake of personal prestige.

It is to the medical departments of the large universities that we should look for the first steps toward improved teaching, for only large schools can offer the inducements for men to prepare themselves as teachers. The majority of students are conscious of working along lines of resistance and feel that they will forget a large part of the information as at present poured into them; they would appreciate the saving of time as well as the better education to be gained in a school conducted upon rational principles of teaching. The small, poorly equipped schools which turn out the half-trained men would be driven from the field from lack of support, and the general standard of medical education would rise.

It is high time that the medical instructors appreciate the fact that they are not exempt from the general laws of teaching, and that the future medical student is now receiving his preparatory education along modern lines. Is it likely

that, when he reaches the professional school, he will be content to be subjected to methods of teaching long ago deemed obsolete?

The object of medical education is the development of power in a special field, and this object is not accomplished merely by the presentation of a large number of facts. Reform in medical teaching does not mean that medicine will be made easy; it means the adoption of methods by which every particle of mental energy expended is realized by the student in the shape of increased power; it means the economy and concentration of effort during three years, and not diffusion over four; it means that the medical instructor must not only know his subject but learn something of the science and art of teaching.

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